

PARENTAL AGGRESSION-RELATED BELIEFS AND BEHAVIORS AS PREDICTORS OF THEIR
CHILDREN'S AGGRESSION RELATED BELIEFS AND BEHAVIORS

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Abstract

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Youth aggression is a serious problem not only in terms of its immediate effects, but in its future consequences as well. In addition, whether children are aggressive or not, their proneness to aggressive behavior remains relatively stable throughout the lifespan (Huesmann, Dubow, & Boxer, 2009). For decades, researchers have been interested in how aggressive behavior is developed and maintained. The predominant theory in the field of developmental psychology is the social cognitive model. This thesis focuses on parental influences on childhood aggression. The data for this study come from a project on the development of aggression within and across generations (Columbia County Longitudinal Study; Dubow, Boxer, & Huesmann, 2009; Eron, Walder, & Lefkowitz, 1971; Lefkowitz, Eron, Walder, & Huesmann, 1977; Huesmann, Dubow, & Boxer, 2009). I examine the links among parental aggression, parents' and children's social cognitions, and children's own aggression. The degree to which parent variables (parent aggression, parent social cognitions, inter-parental aggression, and parental punishment) predict child aggressive behavior as mediated by child social cognitions supporting aggression (a composite of hostile attribution bias, normative beliefs about aggression, aggressive fantasy, and social problem solving) are investigated. Results support a mediational model in which parental aggressive punishment predicts their children developing more aggressive social cognitions, which in turn predicts children having higher aggression. Results suggest that parental punishment—specifically verbal punishment—plays a significant role in increasing childhood aggression.

For Jane

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Introduction

Theories of the development of aggressive behavior

Aggressive behavior has been shown to be relatively stable across the lifespan (Andershed & Pepler, 2013; Huesmann et al., 1984; Huesmann, Dubow, & Boxer, 2009; Huesmann & Moise, 1998). For decades, researchers have been interested in the processes that promote this moderate stability. Primarily, aggression is believed to develop as a result of exposure to aggressive models (e.g., in the home, in the community, in the media), and social learning processes, including the development of social cognitions that support aggression early in life.

Social cognitive models. As noted, an increasingly popular framework in which to understand the development and maintenance of aggressive behavior is social cognitive theory. The most prominent modern day social cognitive theories are deeply rooted in social cognitive theories from early innovators. Bandura's social learning model (1977) proposed many of the innovations that are included in modern social cognitive theory, including, learning through modeling, learning being a cognitive process, and vicarious reinforcement. Berkowitz's cognitive neoassociation model (1989) proposed that individuals pair feelings of anger and aggression with certain stimuli and situations, thus making them more likely to behave aggressively in those situations. Patterson's social coercion model (1986; 1992) was also highly influential to social cognitive theory. The social coercion model posits that dysfunctional interactions between parents and children lead to escalations in behavior problems for children, until they are eventually rewarded for their behavior by the cessation of their parent's punishment. When the children are rewarded, they are reinforced in their negative behavior, making it more likely for them to exhibit behavioral problems toward their parents and toward others. This theory, in combination with current social cognitive theories, was one of the first to

propose an interactional model in which parents influence children's behavior problems. Other theories come from a moral reasoning tradition, such as the moral domain model (Nucci, 2001; Turiel 1983; Turiel, 1998). Theories of moral development posit that, as children develop morality, they differentially determine what behaviors are appropriate and inappropriate based on how morally acceptable they deem certain acts. In general, children view personal choices (e.g., hairstyle, clothing choices), and conventional rules (e.g., calling adults "sir") as less salient than moral transgressions. Children are more likely to view moral transgressions—such as engaging in physical aggression—as the most wrong, the most important, and the most deserving of punishment (Tisak & Jankowski, 1996). Accordingly, this affects how children interact with others: if they have a well-developed sense of morality, they are less likely to engage in harmful acts—including physical aggression—with other children. Because of their eminence among modern day theories and the design of the study from which I take my data, I will primarily focus on two different theories of the development of aggression.

Two competing, albeit similar, social cognitive models for the learning of aggression have come to the forefront. Dodge's (1980) paper on the social information-processing bases of aggressive behavior in children was the first paper to describe how children make decisions which lead them to behave aggressively—as well as provide a cognitive process rationale for these decisions (see also Dodge & Crick, 1990). This model focuses on five steps: encoding of social cues in a social situation, accurate interpretation of these cues, searching for a response, evaluating the potential outcomes of the response, and enacting the chosen response. The authors argued that if a child is skilled at processing in each one of these steps, the child will be able to perform non-aggressively and competently in a social situation, which lowers the likelihood that the child will develop aggression. Dodge described a critical bias in processing social

information that can occur in the child's interpretation of social cues: the hostile attribution bias (HAB). It is possible for a child to develop a bias toward attributing hostile intent to another person's behavior in a social situation in which the other person's behavior occurs without clearly hostile intent. Presumably, an HAB can develop if the child is repeatedly exposed to aggressive behavior by different models. This bias leads to difficulties in the later steps of social information processing, and thus will more likely elicit an aggressive response by the child.

The second prominent social cognitive theory of the development of aggression is Huesmann's (1988, 1998) information processing model. This theory focuses on scripts for aggressive behavior that are developed in childhood. These scripts are acquired through observation of aggressive others, and also through learning processes which perpetuate aggressive behavior in these children. Once a child observes others' aggressive behavior and potential positive consequences of the aggression (e.g., object acquisition, obtaining rewards), the child is more likely to commit those scripts to memory, where they serve as internal guides for acting in similar social situations. Huesmann argues that the more that aggressive scripts are enacted, they not only become more solidified in a child's cognitive processes, but they can continue into and throughout adulthood.

The information processing theory hinges on aggressive scripts. Rosenfeld et al. (1978) posited that aggressive scripts are learned through watching others and then are encoded and stored in memory. According to this theory, children are more likely to internalize scenes that are perceived as being useful in real life scenarios. Once these scripts are learned, individuals rehearse them in their mind by playing the scenes over again. This process of rehearsing, called aggressive fantasy, solidifies these aggressive scripts and makes them more likely to be retrieved and used in social problem solving scenarios. When a child internalizes many aggressive scripts,

they become more likely to use these scripts in a number of different social problem solving scenarios, making aggressive responses more frequent.

When children observe an abundance of aggression in their environments and see that aggression may lead to positive outcomes for the actor, they also develop beliefs that aggression is normative and justified (e.g., Guerra, Huesmann, & Spindler, 2003). Once a child views aggression in this way, he or she has developed positive *Normative Beliefs* about aggression; that is, the child is more likely to judge that an aggressive response is appropriate and justified for himself/herself to enact. Normative beliefs about aggression were introduced by Guerra et al. (1994) as “an individual’s cognitions about the acceptability or unacceptability of behaviors that regulate his or her corresponding behaviors” (pp. 141). These normative beliefs about aggression are used in social situations where a child needs to respond to social cues to guide behavior. Having normative beliefs supporting aggression allows an individual to more easily retrieve an aggressive script to use in a situation. According to Guerra and Huesmann’s model, normative beliefs can affect many different steps or pathways during social interactions, including evaluating social cues, retrieving scripts to respond to cues, and evaluating scripts. Although normative beliefs can be used in specific situations, they can also be general views: a situation-specific normative belief could be “it is ok to call someone a bad name if they did something mean to you,” whereas a general normative belief would be “it is OK to call someone a bad name,” (Huesmann & Guerra, 1997). Once these views have taken hold, it becomes easier for a child to retrieve aggressive scripts when the child is confronted with a social problem and thus more likely to enact these scripts and act in an aggressive manner.

Although these social cognitive models emphasize different social cognitive processes, both agree that the development of aggressive behavior happens early in life and that learning

through observation and through one's own behavior (enactive learning) are likely the most important learning mechanisms for the development and maintenance of aggressive behavior.

Empirical studies of specific social cognitions. As noted, multiple mechanisms have been proposed to explain the perpetuation of aggressive behavior throughout the lifespan. The first mechanism is the Hostile Attribution Bias (Dodge & Crick, 1980; Dodge & Frame, 1982).

Dodge and Tomlin (1987) found that in 6th through 8th grade children (N = 60), those children who displayed more aggressive behaviors tended to have an HAB. The authors also found that rather than using social cues in order to decide how to handle a situation, children self-reported using their own self-schemas more often than non-aggressive children, which led them to interpreting ambiguous situations as hostile. Researchers determined this through asking children how they decided whether an act that was presented in a vignette was hostile or not and what they used to determine intent: either a cue that was presented in the story, or a general view that they hold toward attributing intent to others. In a meta-analysis completed by DeCastro et al. (2002), HAB was found to be significantly related to aggression, with the largest effects being found for severely aggressive individuals ($r = .19$), 8-12 year olds ($r = .22$), and for children in studies where rejection from peers was an inclusion criteria ($r = .28$).

HAB also increases the likelihood of behaving aggressively in adolescence and adulthood. Adolescents who attribute more hostile intent tend to be the ones who are more aggressive (Steinberg & Dodge, 1983; VanOostrom & Horvath, 1997). VanOostrom and Horvath assessed 58 high school boys (mean age = 17.09) in order to examine the links between HAB and aggression. The authors found that perceived harm and perceived intent among these students significantly predicted aggressive behaviors. HAB has also been linked to multiple types of aggression in adults including physical, relational, and general aggression (Chen,

Coccaro, & Jacobson, 2012; Epps & Kendall, 1995). Although one cannot expect a single social cognitive mechanism such as HAB to explain a large amount of variance in a construct such as aggression that has many causes, it appears that HAB is a robust predictor of aggression in children, adolescents, and adults.

Normative beliefs about aggression have also been consistently shown to be related to children's actual aggressive behaviors. In a 1997 study, Huesmann and Guerra found that in 1,015 inner city 1st and 4th graders, children's normative beliefs were related to their peer-nominated and teacher nominated aggression (a composite of physical, verbal, and indirect aggression). In a study that extended these findings, 1,015 2nd, 4th, and 5th graders were measured in 2 waves one year apart. The researchers found that for 5th graders, time 1 normative beliefs predicted higher aggression at time 2 after controlling for time 1 aggression. This indicated that normative beliefs supporting aggression predicted increases in aggression. More recent studies have continued to find relations between normative beliefs and aggressive behaviors (Lim & Ang, 2009). Fourth and fifth grade students (N = 249) were asked to report on their normative beliefs about aggression, and the frequency with which they engage in physically, verbally, and indirect (e.g., rumor spreading) aggressive behaviors. Results showed a positive correlation between approving more of aggression and actually engaging in aggressive behavior for all three types of aggression.

Among older children, normative beliefs appear to predict aggression as well (McConville & Cornell, 2003). Among middle school-aged children (N = 403), normative beliefs were shown to predict self-reported aggression—hitting shoving, threatening, and bullying—concurrently, and prospectively 7 months later. Not only did normative beliefs predict

self-reported aggression but they predicted the likelihood of teachers and other students nominating a child as a bully.

In addition to general normative beliefs, specific normative beliefs have also been found to predict aggression: among 1,208 5th and 6th graders from different areas of the United States (New York, Pennsylvania, Ohio, and Michigan) children with more positive views of relational aggression tended to engage in more relational aggression, and children with more positive views of physical aggression engaged in more physical aggression (Werner & Nixon, 2005). Therefore, it appears that, while general beliefs predict aggressive behavior, specific normative beliefs about aggression can be just as important.

There also is evidence of the role of aggressive scripts in predicting aggressive behavior. Aggressive fantasy—mentally rehearsing aggression, which presupposes the availability of aggressive scripts—has been shown to be related to aggressive behavior in youth. Among 4,458 urban children, aggressive fantasy was shown to be related to aggression modestly, though significantly, in 2nd ($r = .14$) and 6th ($r = .16$) grade students (Guerra & Huesmann, 2003). Other studies (e.g., Musher-Eizenman et al., 2004) have shown moderate relations between aggressive fantasy and aggression as well.

Parental behaviors and social cognitions about aggression as predictors of children's aggression and social cognitions

Parenting behaviors and cognitions and children's aggressive behavior. As noted above and posited by social learning theory, aggressive parenting behaviors play an important role in children's development of aggression. For example, in a meta-analysis examining the effects that corporal punishment has on children, 27 studies with over 12,000 participants were analyzed, and corporal punishment was found to be significantly positively related to aggression

in children ($d = .36$), and in adults ($d = .57$) (Gershoff, 2002). The link between parental harsh punishment and child aggression has been well-established, with a preponderance of studies demonstrating this relation (Knutson, DeGarmo, Koepl, & Reid, 2005; Morimoto & Sharma, 2004; Shields & Cicchetti, 2001; Turner, Finkelhor, & Ormrod, 2006).

The modeling of aggression that social cognitive theory suggests has been shown in research through multiple generations. In a longitudinal study examining the intergenerational transmission of aggression in intact families ($N = 181$ families; child gender = 50% female; M age = 9.8 years), several factors led to higher rates of aggression in each of the three generations (Dumas, Margolin, & John, 1994). For Generation 2 (G2), marital aggression in G1 significantly predicted child abuse potential and higher rates of self-reported marital aggression. Further, aggression in G2 significantly predicted aggression in G3. Marital aggression in G1 also predicted aggression in G3, which indicates that aggression can be passed down from one generation to the next and—perhaps through genetic mechanisms—even passed through two generations of family. This pattern of intergenerational transmission of aggression has been consistently found and built upon, with more recent studies finding correlations between G1 and G2 aggressive parenting and between G1 aggressive parenting and G3 aggressive behavior (Conger, Neppl, Kim, & Scaramella, 2003). Relations were also found between G1 aggressive parenting and G2 aggression, and G2 aggressive parenting and G3 aggression. These studies illuminate the critical role that modeling plays in the development of aggressive behavior.

Parenting behaviors and cognitions and children's social cognitions related to aggression. Parenting behaviors not only affect their children's aggressive behavior, but can also alter their children's social cognitions. For instance, Nelson and Coyne (2009) demonstrated that among an urban sample ($N = 219$; 90.2% Caucasian) fathers who displayed more negative

parenting behaviors toward their fourth grade children—such as corporal punishment or ignoring children when they misbehave—had children who attributed hostile intent to others more frequently. When parents discipline their children harshly, they can influence social information processing, which leads to higher aggression in children (Weiss, Dodge, Bates, & Pettit, 1992). Studies have also shown that mothers affect their sons' cognitions about aggression. Boys who engage in more negative interactions—such as negative affect or verbalizations—with their mothers in a laboratory play setting more frequently attribute hostile intent to others and have negative attitudes toward familiar and unfamiliar peers (MacKinnon-Lewis, Rabiner, & Starnes, 1999).

There is also some evidence for a link between parents' social cognitions and their children's social cognitions related to aggression. Macbrayer, Milich, and Hundley (2003) found that in a sample of clinic-referred and comparison children ($N = 100$; ages 8-12; 50% female) mothers of aggressive children tend to attribute more hostile intent to their children in ambiguous scenarios. Although the relation did not hold true for boys, girls with mothers who displayed an HAB were more likely to have an HAB, themselves. This link between mothers' and daughters' HAB has been shown in other studies as well (e.g., Werner, 2012). In other research, links have been observed between male children and their mothers' social cognitions. Mothers of aggressive boys have difficulty in interpreting ambiguous intentions, and, like their aggressive sons, are likely to have an HAB, indicating they may model these cognitions to their children (Bickett, Millich, & Brown, 1996). In a 2007 study by Halligan and colleagues, the researchers found that parents who have a generalized tendency to attribute hostile intent also attribute more hostile intent to their child in ambiguous scenarios—however there was no relation found between parent and child HAB. Although there were only few fathers, a 2012 study examined

media influences on children's normative views on aggression and found results supporting a moderating effect that parents can have on social influences that affect children's cognitions (Linder & Werner). Children who viewed more relationally aggressive media approved more of aggression but only if they had parents who engaged in low levels of discussion about the programming the child was watching. These studies demonstrate the effect that parental views can have on changing children's views on aggression.

A recent study sought to investigate the longitudinal links among maternal behavior, aggressive social cognitions, child aggressive social cognitions, and child aggression (Healy et. al., 2015). The participants were dyads of mothers and children (N = 98). Dyads were assessed when children were 18 months old and 5 years old. Children were assessed for behavior problems at 18 months and aggression and hostile attribution bias at 5 years. To assess social cognitions, researchers presented vignettes to children using dolls to enact the scenario. Once children were presented with a scenario, researchers asked them why they thought the person in the story acted the way they did. Children then responded by using dolls to act out the person's motivations—those motivations being hostile or neutral. Mothers were assessed for parenting behaviors when the child was 18 months old and 5 years of age and hostile attribution bias at 5 years only. Results indicated that maternal hostile attributions at 18 months predicted children's hostile attribution biases at 5 years old; that maternal hostile attribution biases were associated with less optimal parenting behavior; and that maternal hostile attribution biases at 18 months predicted children's aggression at 5 years. This study demonstrates how important early parenting influences—not only parenting behaviors but also thought processes—can be in children's development of aggression and their aggressive social cognitions.

Child social cognitions as a mediator of the relation between exposure to aggression and the child's own aggression

In addition to the positive relation between child social cognitions and aggression discussed earlier, there is also evidence—as posited by social cognitive models of the development aggression in youth—that social cognitions can have an effect as a mediator of the relation between exposure to aggression and the child's subsequent aggressive behavior.

Mediation suggests a causal mechanism, i.e., observing aggression causes increased social cognitions related to aggression, which in turn lead the child to behave more aggressively. With correlational data, this is best shown if data are collected at multiple time points so the temporal ordering of the predictor, mediator, and outcome are clear.

Child social cognitions about aggression have been examined as mediators of aggression in previous studies. Children's hostile attributions and positive evaluations of aggression were found to mediate the relation between physical abuse and later conduct problems (Dodge, Pettit, Bates, & Valente, 1995). Children (N = 520) were assessed from kindergarten through third grade. Parental physical abuse was measured by an interview using open ended questions such as, "Do you remember any times that your child was hit severely enough by any adult to be hurt or to require medical attention? If so describe these times." The researchers used various methods (vignettes, cartoon stories) to assess children's social cognitive processing deficits, and their tendency to attribute hostile intent and use aggressive problem solving behaviors. The results showed that physical abuse measured in kindergarten and grade 2 predicted increased encoding errors, more hostile attributions, and more positive evaluations of aggression across the four years of the study, which further predicted conduct problems in grades 3 and 4.

In their 1992 study, Weiss et al. examined the links between early harsh discipline and later school aggression among 2 cohorts of kindergarten-age children (N's = 309 and 275; 47 and 48% female respectively; 83 and 81% Caucasian). The researchers measured early harsh discipline through a parent interview in which the parent was asked about physical punishment toward their children from the child's first birthday, to 12 months prior to the interview. The researchers were interested in biased social information processing as a possible mediator. In order to measure this biased processing, children were shown cartoon vignettes in which a negative event happens between two children, and then asked to tell researchers whether the aggressor's intentions were hostile or non-hostile. School aggression was rated by teachers using the aggression subscale of the Teacher Report Form on the Child Behavior Checklist. Results showed that more early harsh discipline led to deficits in social information processing at time 1 (six months prior to Kindergarten); these social information processing biases further led to higher teacher reported aggression at time 2, six months later. This study indicates that social cognitive deficits can have a mediating effect between early exposure to aggression and later aggressive behaviors. Yeung and Leadbeater (2007) studied 140 4th and 5th graders and found that hostile attributions partially mediated the relation between relational victimization and relational aggression. In this study, relational victimization predicted higher levels of attribution of hostile intent, which in turn predicted greater relational aggression. In addition to children, other research indicates that HAB has a mediating effect on the relation between social exclusion and aggression in young adults (DeWall, Twenge, Gitter & Baumeister, 2009). In a study assessing undergraduates, social exclusion led to hostile cognitive biases; these biases then led to higher aggressive behavior.

Normative beliefs about aggression have also been shown to have a mediating effect on the relation between exposure to aggression and subsequent aggression. Guerra et al. (1995) found that among 1,935 low income 1st, 2nd, and 4th graders, lower socioeconomic status was associated with stronger aggression-supporting beliefs at time one, which in turn was associated with higher aggression at time two. In further work, Guerra, Huesmann, and Spindler (2003) found that in 4,458 urban 1st to 6th graders, community violence exposure in 4th grade and before 5th grade predicted higher levels of normative beliefs supporting aggression in 5th grade, as well as more aggressive fantasy. These, in turn, predicted higher aggression among these children in 6th grade. Emotion regulation and witnessing violence among 4th through 6th graders (N = 778) have been shown to be associated with more biased social cognitive processing including normative beliefs about aggression and aggressive fantasy, which was then linked to higher aggression in children (Musher-Eizenman et al., 2004). Although these variables were all collected at a single time point, the results are consistent with a mediational model.

The Present Study

Childhood aggression is a major public health concern, causing problems potentially across the lifespan, leading researchers to investigate the origins of aggression in childhood and what causes aggression to be a moderately stable trait into adolescence and adulthood.

In the child development literature, the predominant theory to explain the development and maintenance of aggression is social cognitive theory. There are two different—albeit similar—theories that have come to the forefront. These theories are Kenneth Dodge's social information processing theory (1980), and L. Rowell Huesmann's information processing model (1988, 1998). Although these theories emphasize different mechanisms for the development and maintenance of aggression (Dodge suggests as a key mechanism a failure in accurately

identifying hostile and non-hostile intentions in others—the Hostile Attribution Bias; Huesmann posits that children develop an abundance of aggressive scripts and beliefs that support aggressive behaviors in childhood that guide their behavior), both theories focus on children observing the behaviors of others and developing social cognitions that support aggressive behavior.

Parents have been shown to have a significant influence on children's aggressive behavior. Parental behaviors and social cognitions have been linked to more aggressive behavior in their children. In addition, parents' behavior toward their children can influence how children think about aggression—their social cognitions. Negative patterns of parent-child interaction, and modeling of views supportive of aggression have both been linked to more approving views of aggression in children.

In addition, in the relation between observing aggression and children's own aggression, research supports a mediating role for children's social cognitions about aggression. For example, normative beliefs supporting aggression, aggressive fantasy, and hostile attributions have been shown to mediate the relations of child maltreatment, social exclusion, and relational victimization on children's concurrent and subsequent aggression.

The current study will use a longitudinal data set collected over a 40-year period and across generations to examine the role of parental aggressiveness, aggressive parenting, and parental cognitions supportive of aggression in predicting children's social cognitions and aggressive behavior. This study will add to current literature because the data set includes multiple indices of parents' aggression (including self-reports, child reports, self-reports of aggressive personality, and reports from parents, children, and spouse reports of aggressive parenting) and social cognitions related to aggression (aggressive scripts, aggressive fantasy,

persecution beliefs, normative beliefs on aggression, and hostile attribution bias), and multiple indices of children's social cognitions related to aggression (same as parents). Most current research on the relations I am investigating use only *one or two* measures of aggression and social cognitions (i.e. *just* normative beliefs, or *just* hostile attribution bias). In addition, my study will use reports from parents and children in an attempt to avoid concerns about same-method bias (i.e., the same reporter providing data on all measures). Finally, although studies have shown that social cognitive factors can mediate the effects of one predictor on aggression, to the author's knowledge no study has shown a mediating effect of children's social cognitions on the relation of multiple parental aggression/social cognition indices and children's aggression. This study will be the first to examine the links between parent aggression factors and child aggression while being mediated through children's social cognitions.

Hypothesis 1: Main effect predictors of children's aggression. I expect parental aggression, aggression in the family, and parental social cognitions related to aggression to be associated with children's social cognitions related to aggression and children's aggressive behavior. I also expect that children's social cognitions related to aggression will be related to their own aggressive behavior.

Hypothesis 2: Children's aggression-related social cognitions as mediators of parental effects on children's aggression. A mediational model will also be examined. Although the data set does not contain data suitable for traditional mediational models in that I do not have multiple time points in which to examine these variables (i.e., all parental and child measures were administered at the same time point), a path model will be tested to examine whether the data are supportive of a mediational model. Previous studies (such as DeWall et al., 2009; Huesmann & Guerra, 2003) have used this strategy to examine the mediational effects of

biased social cognitions. I expect that parenting aggressive behaviors, social cognitions about aggression, and aggression in the family will be linked to children's aggression-related social cognitions, which will in turn predict children's aggression (See *Figure 1*).

Method

Participants

Background of the Columbia County Longitudinal Study (CCLS). The CCLS is a long-term longitudinal study that began in 1960 with the entire population of third grade children (n=856), and most of their parents, in Columbia County, New York. Following the initial phase, the original participants were resampled at three time points: in 1970 (age 19; n=427), 1981 (age 30; n=632), and 2000 (age 48; n=683). In 2000, for each original participant, a spouse or other close informant (n=394), up to two of their children (n=551), and grandchildren (n=15) also were assessed. The CCLS has focused primarily on the origins and course of aggressive and antisocial behavior development, but also contains data on a wide array of psychosocial variables (e.g., parenting, psychopathology, spousal relationships, beliefs/attitudes). The current thesis focuses on data collected in 2000 on the original participants and their children. Sample publications describing details of the sample, measures, and some findings across waves can be found elsewhere (e.g., Dubow, Boxer, & Huesmann, 2009; Eron, Walder, & Lefkowitz, 1971; Lefkowitz, Eron, Walder, & Huesmann, 1977; Huesmann, Dubow, & Boxer, 2009; Huesmann, Eron, & Dubow, 2002; Huesmann, Eron, Lefkowitz, & Walder, 1984).

Demographic characteristics of the CCLS participants. Columbia County, NY, is semi-rural with a few heavy industries. Of its approximately 63,000 current residents, about 7,500 live in the largest city and county seat, Hudson. The county has had a depressed economy for the last 50 years. At the time the study began, there were 38 public and private third-grade classrooms in the county, all of which were included in the sample. Over 90% of the original sample of 856 participants was Caucasian; 51% were male and 49% were female. The number of ethnic minorities (i.e., 3% African American, < 1% Asian or Pacific Islanders, < 1% Hispanic) was too

small to allow separate analyses. The participants came from a broad range of socioeconomic backgrounds ($M = 5.01$, $SD = 2.23$ on a 10-point scale of father's occupational status derived by Eron et al. (1971), based on Warner, Meeker, and Eells' (1960) 7-point scale; this mean reflects jobs such as craftsmen, foremen, and skilled tradesmen) and displayed a wide range of intelligence (mean IQ of 104, $SD=14$).

For the 523 participants (268 males, 255 females, 61% of the original sample) re-interviewed during 1999-2002 (for convenience, I refer to this 4th wave as the year 2000 data collection phase), the mean age was 48.46 years old ($SD=.77$); the average education level was between some college and a college degree; the average occupational attainment was middle-class status (the average occupational prestige code using Stevens & Hoisington's [1987] prestige scores reflected jobs such as sales, bookkeepers, secretaries); and 69% of the original participants were living with their spouses. The average verbal achievement score on the WRAT was 99.15 ($SD = 13.72$).

Procedures

For wave 4 in 2000, interviews were conducted in person ($n=283$ participants) at a field office in Hudson, NY, or by phone/mail ($n=240$ participants) for those participants who could not travel to Hudson. Interviews were between 2 and 4 hours in length.

As noted, the analyses for this thesis focus on data collected in the 4th wave of the study when the original participants were 48 years old, and when 551 of their children were interviewed. The children's mean age was 19.97 ($SD=5.77$), 51% were females, and their intellectual achievement was average (WRAT Verbal score=105.22, WRAT Math score=101.99). The goal was to interview up to two children per participant (oldest and youngest). The researchers interviewed at least one child in 349 of the families (49% in person, 51% by

phone/mail). For 17 of the 551 children interviewed, both parents were original participants in the study, so for the purposes of these analyses, I randomly deleted the data for one of the parents, so the child is included only once in the data set.

I tried to include the youngest child interviewed in any family where two children were interviewed because the bulk of the existing literature on social cognitions in the development of aggression is focused on youth. In 243 of these families, I included the youngest child in the data set for this study; however, 106 more children were interviewed who were the only child interviewed in the family, so I added them into the data set. After deleting each case where a child's data were duplicated because both parents were original participants, the total sample of children for these analyses was 338 children (54.4% Female; Mean age = 18.66, Std. Dev = 5.7).

Measures

The research questions that I address concern the contributions of parental behavior and parent cognitions supporting aggression to predicting the child's cognitions supporting aggression and the child's aggression. In this section, I report the specific measures used within each of these domains of variables. It is also important to note that because of the wide age range of children at wave 4 (6-33), the CCLS researchers tailored the child measures to be developmentally appropriate for specific age groups (ages 4-7, 8-12, 13-18, and 19+). So, in my descriptions of the child measures, I will note variations in the measures by child age.

Aggression measures. The CCLS researchers used multiple measures to assess aggression among the original participants (the parents, for my analyses); for the most part, the same measures were used to assess their children's aggression. So in this section, I will describe

the aggression measures and indicate which ones were administered to the children and the parents.

The CCLS includes three measures of aggression that have been described in previous publications: general aggression; severe physical aggression; and aggressive personality.

General aggression. In order to measure the child's general aggression, a modified version of the Peer Nomination Inventory of Aggression (PNI; Eron et al., 1971) was used. The 10-item measure was originally designed as a peer-nomination measure, but the items were adapted as a self-report measure. All 10 items were used for children under 13, and 8 were used for children older than 13. This questionnaire was administered as a child self-report and also as a parent-report of the child's aggressive behavior. The respondent (self or parent reporting about the child) indicates how often the child behaves as described by the item (0=never to 3=a lot). Items cover verbal aggression (e.g. "How often do you/does this child say mean things to other people?"), physical aggression (e.g. "How often do you/does this child push or shove other people?"), and acquisitive aggression (e.g., "How often do you/does this child take other people's things without asking?"). The measure has been used in many countries. In the CCLS, coefficient alphas for this measure for children's self-report were .91 (children under 13), .89 (children 13-18), and .88 (children 19 and older). Coefficient alpha for parent-report of the child's aggression was .73.

The original participant—the parent—also was administered this self-report measure to report on himself/herself (coefficient alpha = .73)

Severe physical aggression. Children and parents also completed a questionnaire consisting of 4 items to measure *severe physical aggression*. Example questions include, "how often have you slapped or kicked someone?" or "How often have you punched or beaten

someone?" Each question was scored on a 4 point scale from 0 = never to 3 = a lot. Coefficient alphas for children's self-reports were .55 for children under 19, .61 for children 19 and older.

For parent reports on their own severe physical aggression, coefficient alpha was .66.

Aggressive personality. The CCLS researchers have used a measure from the MMPI to index aggressive personality; it is a valid index of aggressive behavior (Huesmann et al., 1984; Huesmann, Lefkowitz, & Eron, 1978), discriminating well between delinquent and non-delinquent youths. The measure was administered to children 13 and over as a self-report of their own aggressive personality, and to parents as a self-report of their own aggressive personality. The measure consists of the sum of scales 4, 9, and F from the *Minnesota Multiphasic Personality Inventory* (MMPI, Hathaway & McKinley, 1940). For this measure, participants answered a total of 143 statements and indicated whether they were true (1) or false (0) for them. T-scores were calculated for each scale, and then a total T-score was calculated based on these for each participant. Coefficient alpha ranged from .68 to .74 across participants.

Predictors of Child Aggression

Parents' aggression. As described above, parents completed three measures of their own aggression (general aggression, severe physical aggression, aggressive personality). Parent aggression is conceptualized as the first set of predictors of child aggression.

Aggression in the family. The next set of predictors of the child's aggression is the aggressiveness of the home environment. To assess this construct, the CCLS has two relevant measures: parental physical aggression toward the child and spousal or inter-parental aggression.

Parental aggressive punishment. Parents indicated the frequency with which they engaged in various forms of aggressive punishment toward their children using the Conflict Tactics Scale – Parent-Child Version (Straus, 1979). Children over 18 also completed the

measure reporting on parental aggressive punishment. All reports were retrospective, based on parental behavior before the child was 8 years old. Parents were rated on two different types of aggressive punishment: physically aggressive punishment and verbally aggressive punishment. All items utilized a 1-4 scale where 1 = never, 2 = seldom, 3 = sometimes, and 4 = often.

Five items were utilized to probe for physical aggression that reflected *hitting* (e.g. "BEFORE THIS CHILD WAS 8 YEARS OLD, how often did you slap this child in the face?") Coefficient alphas were .90 for parent self-report of hitting, .90 for child report of fathers' hitting, and .78 for child report of mothers' hitting. Each parent also reported on the other parent's hitting. A composite score of the aggressiveness of the punishments in the home was calculated as a mean of self-reports of parents and spouses on their own aggressive punishment toward the child, reports of parents and spouses on *each other's* aggressive punishments, and a child report (for children age 19 and older) of each parent's aggressive punishments.

Five items were utilized to probe for verbal aggression before the child was 8 years old (e.g., "BEFORE YOU WERE 8 YEARS OLD, how often did your father shout, yell, or scream at you?", and "BEFORE YOU WERE 8 YEARS OLD, how often did your mother call you dumb, lazy, or some other name like that?"). Verbal aggression measures were only given to children. Coefficient alphas for fathers' verbally aggressive punishment toward children ages 8-18 were .78, and for children ages 19 and older, alphas were .74. Coefficient alphas for mothers' verbally aggressive punishment for children ages 8-18 were .86, and for children ages 19 and older, alphas were .81. A verbal aggression composite score was calculated as a mean of scores for child reports of both parents' verbal aggression toward them.

Inter-parental (spousal) aggression. Aggression within the parents' relationship was assessed as an index of child's exposure to physical aggression in the home. In order to assess

inter-parental aggression, 9 items were used from the *Home Violence Questionnaire* (Straus, Giles, & Steinmetz, 1979). Parents who were currently married or had been recently living with a partner or a spouse were asked how frequently they engaged in aggressive behavior toward their spouse or partner. Aggressive behaviors included threatening violence, or actually committing a type of violent physical act toward their partner in the last 12 months (e.g. "How many times in the last 12 months have you threatened to hit or throw something at your spouse?", or "How many times in the last 12 months have you kicked, bit, or hit your spouse with a fist?") Parents reported on their aggression toward their spouse and the spouse's aggression toward him/her, and spouses reported on their own aggression toward the parent and the parent's aggression toward him/her. Coefficient alphas for these items were .72 for self-reports and .90 for reports about the spouse. A composite score for inter-parental aggression was calculated as a mean of both the parents' self-report and the spouse's report on parent inter-parental aggression.

Parent and child aggressive cognitions. The third set of predictors of child aggression is the parents' and the children's own aggressive cognitions. Because parents and children were administered the same measures of aggression-related cognitions, these measures will be described in this section.

Aggressive scripts. A measure of the degree to which participants have a repertoire of aggressive scripts was based on a vignette measure of social problem-solving skills developed by Deluty (1981) and revised by Dubow et al (1991). Parents and children were presented with four hypothetical vignettes in which someone commits some type of aggressive act toward them, and they are asked to write for no longer than three minutes about how they would respond in that situation. A sample vignette for parents is, "You are looking for a parking spot in a seemingly full parking lot. You finally find one, put on your blinker, and start driving into the space."

Before you actually get into the space, another driver quickly slides into your space. You tell him to get out of your space to which he responds, 'Get lost!'" For children, an example is, "You're standing in line for a drink of water. A kid your age and size walks over and shoves you out of line." Vignettes were revised for 13-18 year olds to be more age appropriate (e.g. standing in line for a movie instead of a drinking fountain).

Responses from participants were coded according to content and severity of aggression. Content categories consisted of: physical direct aggression (physically aggressive responses to the antagonist), verbal direct aggression (verbally aggressive responses to the antagonist), and indirect aggression (any aggressive response that is not directed at the antagonist). Severity ratings were: 0 = no aggressiveness; 1 = aggressive thought responses that are not acted out; 2 = mild aggressive response meant to injure or irritate someone, or destroy property; and 3 = serious aggressive responses. For reliability analysis, two raters commonly coded a subsample of 344 responses. The raters reached 90% agreement on whether a response constituted a single scorable solution; and $r = .92$ on the aggressiveness seriousness rating. For my analyses, I will use the measure of the average of aggressiveness severity ratings across the vignettes. Coefficient alphas were .72 (children 4-18) for the sum of aggression ratings for each of the four vignettes. The coefficient alpha for adults was .68.

Aggressive fantasy. Aggressive fantasies are thought of as ways to rehearse aggressive scripts mentally, and when individuals often fantasize about engaging in aggressive ways, they may be more likely to respond to aggression-relevant social cues with aggressive acts (Huesmann, 1998). The 4-item aggressive fantasy scale from the *Fantasy Inventory* (Rosenfeld, Huesmann, Eron, & Torney, Purta, 1982) includes items such as "When you get mad, sometimes, do you daydream about the things you would like to do to the person you're mad

at—like hitting, damaging their property or getting them into trouble?”); response options range from 0 = never to 3 = often. Parents and children were given this questionnaire. Coefficient alphas for this measure were .72 for parents and .75 (ages 8-12), .78 (ages 13-18), and .76 (19 and older) for children.

Hostile attribution biases. Parents and children were provided with vignettes to assess their tendency to attribute hostile intent to ambiguous situations. Vignettes were based on those described by Dodge and Frame (1982). These vignettes are treated as an index in order to assess how many situations participants view as hostile. Participants ages 19 and older read five 2-3 sentence hypothetical vignettes in which they are provoked in some way and asked to imagine that the situation is happening to them (younger participants were administered four vignettes). The intent of the provocative behavior is left ambiguous; in other words, the provocative behavior could be meant aggressively, or it could be completely unintentional. For parents, vignettes take place at work (“Imagine that you walk into the break room at work where two of your co-workers are talking very quietly. They stop talking as soon as they see you walk into the room”), at a concert (“When the band comes on you stand up, just as the people in front of you have done. A couple minutes later, you feel the coke of the person sitting behind you spill all over your back”), and in a park (“Imagine that you are walking across the park and a frisbee hits you in the back of the head...”).

For 8-12 year-old children, situations were presented to them from the playground (“Imagine you are standing on the playground and you get hit hard in the back by a ball thrown by another kid”), at the lunch table (“Imagine you are sitting at the lunch table and another kid’s carton of milk spills all over your back”) and in class at school (“Imagine you lose a pencil at school, and later on you see another kid holding it in his/her hand”). For 13-18 year-old children,

situations were revised to make the vignettes age appropriate (e.g., the milk spilling is replaced with coke spilling, or instead of losing a pencil the child loses a calculator).

Vignettes were the same as the adults for children 19 and over.

Once vignettes were presented to participants, they were asked to answer a forced-choice response set on whether the negative outcome described in the vignette was done “on purpose” (1=hostile) or “on accident” (0=non-hostile). Total scores ranged from 0 to 4 (participants less than 19 years old) or 5 (participants 19 years and older) based on the number of vignettes to which the participant responded with a hostile bias option

Normative beliefs about aggression. Parents and children were administered the Normative Beliefs about Aggression Scale (NOBAGS; Huesmann & Guerra, 1997). The NOBAGS is a 20-item measure that is used to assess how appropriate individuals think certain aggressive behaviors are in certain situations. The questionnaire begins by stating, “Now we are going to ask you whether you think certain things are WRONG or are OK for people to do. Each item is rated along a 4-point scale from 1 = It’s perfectly OK, to 4 = It’s really WRONG. Twelve items assess normative beliefs about retaliatory aggression (e.g., “Suppose a man says something bad to a woman. Do you think it’s WRONG for the woman to hit him?”). Eight items assess normative beliefs about aggression in general (e.g., “In general, it is wrong to hit other people?”). Overall scores reflect the average of responses to the 20 items. Coefficient alphas for parents were .85 (retaliation beliefs) and .79 (general beliefs); for children alphas were .88 (ages 8-12), .86 (ages 13-18), and .85 (ages 19 and older) for retaliation beliefs; and .91 (ages 8-12), .84 (ages 13-18), and .82 (ages 19 and older) for general beliefs.

Results

Preliminary Analyses

Data reduction: Reducing variables within domains. For ease of analyses, I decided to reduce the number of variables within domains in the data. Within both the child- and parent-aggression domains, there were three variables. I decided to use composite scores for child and parent aggression based on previous studies that supported using composite scores from these same measures (Huesmann, Dubow, & Boxer 2011a; Huesmann, Dubow, & Boxer 2011b)¹. Within both the child and parent aggressive cognitions domain, there were four variables. I computed principal components analyses (PCA) to determine if the number of variables within each domain could be reduced to fewer variables. Note that individual-level items were not used in the PCA; I used subscales of the different measures. Both child- and parent-social cognitions (HAB, normative beliefs on aggression, social problem solving, and aggressive fantasy) had only one component with eigenvalues greater than 1. For the child aggressive social cognitions PCA, 45.4% of variance was accounted for by 1 component (eigenvalue = 1.82), with component loadings ranging from .59 to .75. For the parent aggressive social cognitions PCA, 44.1% of variance was accounted for by 1 component (eigenvalue = 1.77, with component loadings ranging from .58 to .71. Based on these results, I computed a child cognitions variable by standardizing and averaging the three measures, and I created a parent cognitions variable using the same method. Within the aggression in the family domain, there were four variables. Again, I computed a principal components analysis to determine if the number of variables could be reduced. Eigenvalues over 1.0 ranged from 1.17 to 1.8 for a two factor model, which accounted

¹ Huesmann and colleagues have developed composite aggression scores for the parent and child as follows: they first converted the aggression measures obtained at wave 4 (self-report of peer-nomination questions, self-report of serious physical aggression, MMPI F+4+9) to standardized z-scores; next, the researchers computed a measurement model for combining the measures; and finally, a composite measure of aggression was computed as the weighted mean of the three aggression scores available for the parent at wave 4 wave and for the child at Wave 4

for 29.3% of the variance. Component loadings for the first factor (parental punishment: Parent verbal punishment and parent physical punishment) ranged from .6 to .7; component loadings for the second factor (inter-parental aggression: inter-parental aggression from parent to partner and inter-parental aggression from partner to parent) ranged from .47 to .63. Based on these results, I created an inter-parental aggression variable by standardizing and averaging the two variables within this factor, and created a parental punishment variable using the same method.

Demographic differences in the major study variables. In order to determine if any demographic variables needed to be statistically controlled in the major analyses, I computed bivariate correlation analyses to examine the relations between the continuous demographic variables (child age and parent education) and the major study variables. Table 1 shows that older youth had lower levels of aggression and were punished more frequently by parents, and higher levels of parent education were related to lower levels of parent aggression and inter-parental aggression. Thus, child age and parents' education were statistically controlled in the major study analyses.

To examine relationships between the categorical demographic variables (child and parent sex) and the major study variables, a series of one way ANOVAs were computed. Parental aggression scores did not differ based on child sex ($F(1, 304) = .02, p = .88$) or parent sex ($F(1, 304) = .54, p = .46$). For parent aggressive social cognitions, no mean differences were observed based on child sex ($F(1, 325) = 1.41, p = .236$), but there was a significant mean difference based on parent sex ($F(1, 325) = 12.4, p < .001$): mothers scored higher on measures of aggressive social cognitions than fathers. Parents' inter-parental aggression did not differ based on child sex ($F(1, 317) = 3.5, p = .06$) but did differ based on parent sex ($F(1, 317) = 4.94, p = .03$): mothers perpetuated more inter-parental aggression. Parental aggressive punishment

was significantly different based on child sex ($F(1, 333) = .7.01, p = .008$), but not based on parent sex ($F(1, 333) = 2.46, p = .12$): parents of male children scored higher on measures of aggressive punishment than parents of female children. Child cognitions were related to child sex ($F(1, 334) = 23.19, p < .001$), but not parent sex ($F(1, 334) = .001, p = .97$): male children scored higher on measures of aggressive social cognitions than female children. Child aggression differed significantly based on child sex ($F(1, 334) = 13.427, p < .001$), but not parent sex ($F(1, 334) = .884, p = .35$): male children scored higher on the aggression measure than female children did. Based on these results, I controlled for parent and child sex in the major study analyses.

Hypothesis 1: Main effect predictors of children's aggression. Bivariate correlation analyses were computed to examine parent predictors of child aggressive social cognitions and child aggression (see Table 2). My first prediction was that parent aggression, parent aggressive social cognitions, and aggression in the home would be positively related to children's aggressive social cognitions. Contrary to my prediction, the only parent aggression variable that was related to child social cognitions was parental punishment ($r = .26$). My second prediction was that the aforementioned parent variables would be positively related to child aggression. Of the four variables, parent aggression, inter-parental aggression, and parental punishment all significantly, positively predicted children's aggression ($rs = .23, .14, .18$, respectively). I also predicted that children's own social cognitions would positively predict their own aggression: these two variables were significantly related ($r = .59$).

Hypothesis 2: Children's aggression-related social cognitions as mediators of parental effects on children's aggression. A mediation analysis was computed using the PROCESS Macro for SPSS (Hayes) to test the hypothesis that children's social cognitions

supporting aggression would mediate the relation between the parent variables and children's aggression. The structural model and regression coefficients can be seen in Figure 2. Though not displayed in the models, child age, parent education, child sex, and parent sex were controlled in all mediation analyses. All predictor variables, overall, predicted child aggressive social cognitions, $F(8, 287) = 5.94, p < .001, R^2 = .14$. All variables, overall, also predicted children's aggression, $F(9, 286) = 25.9, p < .001, R^2 = .45$. The only parent variable that uniquely predicted children's aggressive cognitions was parental punishment ($\beta = .17; p < .01$). When taking into account children's aggressive cognitions in predicting children's aggression, children's cognitions significantly, positively predicted children's aggression ($\beta = .69, p < .001$), whereas parental punishment lost significance ($\beta = .07, p = .20$). The indirect effect of parental punishment on children's aggression through children's social cognitions was .12, with a confidence interval from .04 to .20. Because the confidence interval does not include zero, the indirect effect (.12) is significant, indicating a mediation effect in which parental punishment predicts children's aggressive social cognitions, which in turn predicts children's aggressive behavior.

Because parental punishment was a composite score of verbal and physical punishment, I computed a supplementary analysis to explore whether the mediation effect of parental punishment on children's aggression through children's aggressive social cognitions was evident for parental verbal and/or physical punishment. The results of this analysis are presented in Appendix A. This analysis showed a significant mediation effect when the predictor was parental verbal punishment, but not physical punishment. I discuss this result in the Discussion section.

To see if certain social cognitions were the driving force behind the model, I also decided to examine individual social cognitions (i.e., normative beliefs about aggression, hostile

attribution bias, aggressive fantasy, and social problem solving) as mediators rather than the aggregate social cognitive variable. The results of this analysis are presented in Appendix B. This analysis showed evidence of full mediation from parental punishment to child aggression when the mediator variables were normative beliefs justifying aggression and hostile attribution bias but not for aggressive fantasy or for social problem solving.

Supplementary analyses. To examine if the observed mediational model differed by child sex, a structural equation model was computed to compare a “constrained model,” where the structural weights of the model are assumed equal for males and females, to an “unconstrained model,” where the structural weights are free to vary for males and females. Fit indices were as follows: the constrained model ($CMIN/DF = 2.3$, $CFI = .932$, $RMSEA = .06$) and the unconstrained model ($CMIN/DF = 4.0$, $CFI = .932$, $RMSEA = .094$). Chi-Square difference testing found that constraining the path coefficients by gender did not lead to a significantly worse fit ($\Delta X^2 = 11.2$, $DF = 11$, $p = .43$), so I conclude that the path coefficients do not vary significantly by the child's sex.

I was also interested in whether the observed mediational model held true among different age groups. Again, I utilized a structural equation model to compare a “constrained” and an “unconstrained” model for age. I examined two age groupings: children 18 and under ($N = 173$), and children older than 18 ($N = 165$). The reason I chose these two age groups is because children 18 and under are likely to still be living with their parents, whereas children over 18 are presumably living outside the home and are affected less by parental influence. The fit indices were as follows: the constrained model ($CMIN/DF = 1.72$, $CFI = .956$, $RMSEA = .05$) and the unconstrained model ($CMIN/DF = 2.7$, $CFI = .957$, $RMSEA = .07$). Chi-Square difference testing found that constraining the path coefficients by age did not lead to a significantly worse fit (ΔX^2

= 11.07, $DF = 11$, $p = .44$), so I conclude that the path coefficients do not vary significantly by the child's age.

Discussion

Because of the deleterious effects of child aggression on the child's future functioning into adulthood (Mathieson & Crick, 2010; Spieker et al., 2011; Temcheff et al., 2011), it is important to identify the mechanisms by which children develop aggressive behavior. I sought to investigate parental influences on child aggression which are well documented (Conger, Neppl, Kim, & Scaramella, 2003; Dumas, Margolin, & John, 1994; Gershoff, 2002; Knutson, DeGarmo, Koeppl, & Reid, 2005), as well as one potential mechanism by which parental influences exert their effects on children's aggressive behavior: children's aggression-related social cognitions. Thus, my primary interest was investigating a mediational model in which parental aggression variables predicted children's aggressive social cognitions, which in turn predict children's aggression. This mediation model is based on social cognitive models of aggression, in which salient adult influences relevant to aggressive behavior (e.g., the aggression present in the home environment) affect children's cognitions about aggression and then, in turn, children's aggressive behavior.

In the sections that follow, I will discuss each of the main hypotheses investigated, what results I found related to the hypotheses, how the results relate to past research, and what implications these findings hold.

The parenting environment

Social cognitive models posit that important adults in a child's life influence the child's behavior through modeling. Based on this assertion, I predicted that child aggression would be positively predicted by parental behaviors such as parental aggression, inter-parental aggression, and parental punishment, as well as by parent aggressive social cognitions. Child aggression was

positively predicted by parent aggression, inter-parental aggression, and parental punishment; parent social cognitions about aggression was the only parent variable in this study that did not predict children's aggressive behaviors. Previous literature has demonstrated that children's aggression is related to parents' influences such as the parent's own aggression (Dumas, Margolin, & John, 1994), inter-parental aggression (Dumas, Margolin, & John, 1994), parental harsh punishment (Gershoff, 2002), and parent aggressive social cognitions (Macbrayer, Milich, & Hundley, 2003; Dix & Lochman, 1990). My results were congruent with previous literature in all cases except for parent aggressive social cognitions. All three of the parent predictor variables that significantly predicted children's aggression were parent behaviors that could be directly observed by the child—and therefore imitated, as posited by social cognitive theory. Parents who rate themselves as more aggressive, engaged in more aggressive behavior with their spouse, and frequently punished their children aggressively, likely model aggressive behavior for their children. When parents are exhibiting these behaviors regularly, children have ample opportunity to emulate them. Parent social cognitions about aggression, on the other hand, is the only predictor variable that is not directly observable by the child—the child must infer the parent's beliefs. Perhaps this accounts for why it was not significantly related to the child's aggression. Still, taken together, the findings are consistent with the argument that parents who engage in aggressive behaviors—not only toward the child through punishment but also toward others—engender aggression in their own children.

Children's social cognitions about aggression and their own aggressive Behavior

I predicted that children's own social cognitions about aggression would be positively related to their own aggression. According to social cognitive models, when children develop maladaptive thought processes related to aggression, they are more likely to behave aggressively.

The results demonstrated this relation: I found that the children who engaged in biased social information processing also behaved more aggressively. Not only did the composite that I created—comprised of four types of child social cognitions on aggression—predict children's aggression, but each specific social cognition individually predicted children's aggression, as well (See table 3). According to social cognitive theory, if a child views others' actions toward him or her as hostile, the child is more likely to respond to these actions aggressively. If children view aggressive behavior as normative and justified, they will utilize aggressive responses more frequently. And if children rehearse aggressive responses through aggressive fantasy, these actions will be more readily available in their repertoire of behaviors (Dodge, 1980, 1990; Huesmann, 1988, 1998). Accordingly, the children I studied who endorsed responses characteristic of these biased cognitions about aggression reported behaving more aggressively toward others. This finding extends the myriad studies that link children's aggressive social cognitions to their own aggression (DeCastro et al., 2002; Dodge & Tomlin, 1987; Huesmann & Guerra, 1997; Van Oostrum & Horvath, 1997). These results highlight the important role that social cognitions play in children's behavior. If researchers can establish interventions that prevent children from developing positive aggression-related social cognitions, this prevention would likely reduce children's aggressive behavior as well.

Children's social cognitions about aggression as a mediator of the relation between parental aggression and child aggression

I also hypothesized that parent indices of aggression (their own behavior and their cognitions about aggression) would positively predict children's social cognitions about aggression. This is another example of children learning through parental modeling. Contrary to my hypothesis, of the parent predictor variables that I studied, only parental punishment

predicted child social cognitions that were more supportive of aggression; parent aggression, inter-parental aggression, and parents' own social cognitions about aggression did not predict child social cognitions about aggression. Previous research has also found that harsh punishment from a parent can increase the likelihood of a child developing social cognitions that are more supportive of aggression (Nelson and Coyne, 2009; Weiss, Dodge, Bates, & Pettit, 1992). Of the four predictor variables, parental punishment is the only variable in which parents demonstrated aggressive behavior directly toward their children. Perhaps this is why parental aggressive punishment predicted children's aggressive social cognitions whereas the other predictor variables did not. Though parental aggression and inter-parental aggression may model aggressive behaviors for the child, they may not indicate approval of aggression in the same way that demonstrating aggressive behavior directly toward the child does. When a parent directly confronts a child with aggressive behaviors, the child may find these behaviors more salient and therefore make stronger connections between their parent's actions and how it is acceptable for them to behave. Thus, this finding suggests that when parents punish their children harshly, they are suggesting to their children that aggressive behaviors are acceptable.

As noted, a mediational model including parental punishment similar to the one I investigated has been observed in previous research (Dodge, Pettit, Bates, & Valente, 1995; Weiss et al., 1992). However, these studies only featured physical punishment from parents as a predictor of children's social cognitions. The parental harsh punishment variable in my study was a composite of physical punishment and harsh verbal punishment. Few studies have examined verbal punishment as a predictor of child behavior problems (Vissing, Gelles, & Harrop, 1991); and to the author's knowledge, no previous studies have included harsh verbal punishment in a mediational model predicting children's social cognitions and their aggression.

When I decomposed the punishment variable into physical and verbal punishment, the results suggested that the effects of verbal punishment—but not physical punishment—were mediated through children's aggressive social cognitions to predict their aggression. It is possible that in my analyses, the lack of an effect for physical punishment could be due to a restriction of range in the physical punishment variable. Specifically, 74% of parents reported that they never hit their children. Further research should examine the relation between parent physical punishment, children's aggressive social cognitions, and children's aggression in samples that would be more likely to endorse the use of physical punishment, such as clinic-referred families or families that have reported physical abuse in the past.

Mediation by child aggressive social cognitions was not observed for parent aggression, inter-parental aggression, or parents' aggression-supporting social cognitions. It is unclear why variables that have been shown in past research to predict children's social cognitions did not predict them in this study. As previously mentioned, these three variables do not involve the child directly—they are only observed by the child. Perhaps because the child is not directly affected by the aggression displayed through these variables—as the child is by parental punishment—it decreases the likelihood that child would approve of aggression due to these influences.

Limitations and future directions

This research is limited by several factors. All of the data were collected at one time point (when the parents were age 48 and their children ranged in age from 6 to 33 years old), so it is difficult to establish temporal mediation. Because the data were collected at one time, it is possible that the relations among my predictor, mediator, and outcome variables are not in the

temporal order I hypothesized (i.e., parent influences predict child aggressive social cognitions which in turn predict child aggression). For example, because children's cognitions and their aggression were assessed at the same time, it is impossible to say whether their cognitions played a causal role in the development of their behavior, or vice versa. Indeed, in a supplementary analysis in which aggression was included as the mediator between parental punishment and children's cognitions, the results showed aggression to be a partial mediator of the relation between punishment and aggressive cognitions. Prospective data are required to determine which temporal sequencing is stronger. Future research should use a longitudinal design with at least three time points to present a temporal mediational model in which the parent aggression-related variables are measured prior to the child aggressive social cognitive variables, which then are related to subsequent child aggression; in addition, prior measures of children's aggression-related social cognitions and aggression need to be collected at the initial time point to control for the stability of these variables over time.

A second limitation is that the parental punishment measure was retrospective in nature, asking parents and children to recall their experiences from before the child was 8 years old. It is possible that children and parents misremembered the extent of the punishment that parents engaged in, either over- or under-reporting the amount of punishment used. Again, future studies can remedy this limitation by implementing prospective designs, asking parents and children about punishment that is occurring at the times of the interview when children are actually growing up.

Another important limitation is that I only studied child aggression through the lens of Social Cognitive Theory. I did not focus on other theories of aggression such as theories of moral development (Nucci, 2001; Turiel, 1983; Turiel, 1998). It should be noted that Guerra, Nucci,

and Huesmann (1994) developed a theory that attempted to integrate both social cognitive theory and moral domain theory into a cohesive whole, as they observed overlap and complimentary features of the two theories. Had I included a measure of morality in this thesis, my results would be more robust being based on multiple theoretical orientations. Because social domain theorists assert that parents play an important role in children's moral development (e.g., Smetana, 2009), future research should examine the links among childhood aggression, development of morality, and parental factors.

Despite these limitations, the results of this study are consistent with a social cognitive model of the development of aggression in children. Results support that parent behaviors affect the child and that children's social cognitions play a key role in the processes by which parent behavior (at least parent harsh punishment toward the child) might influence child aggression. Future research should focus on prospective studies to demonstrate the relation between parent and child aggression at different time points, with the ability to statistically control for earlier factors. Researchers should also use multiple sources of data in their studies; using parents, children, and other reporters like teachers or other students would present a robust and nuanced view of the climate of aggression in a child's life.

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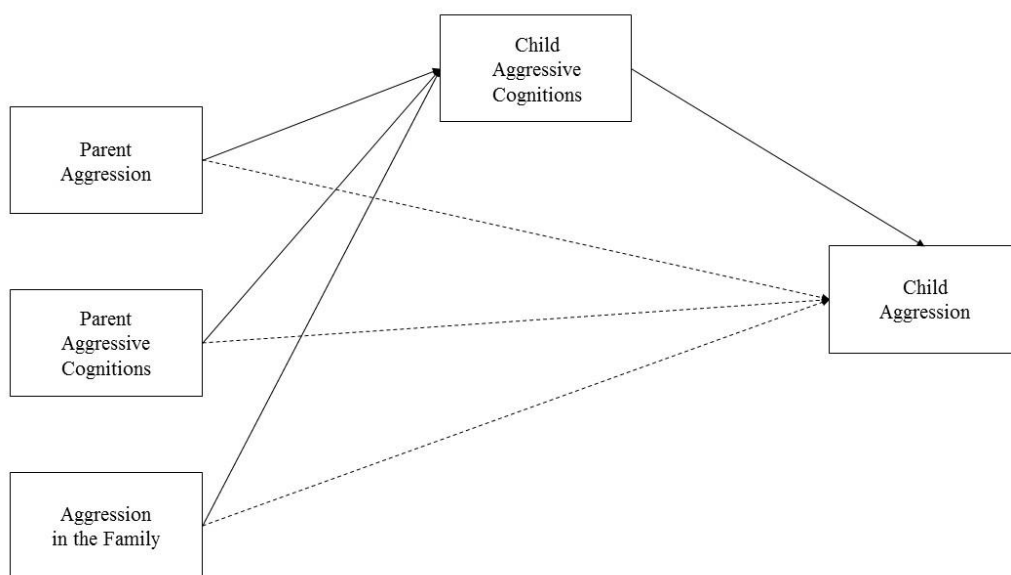


Fig 1. Hypothesis of Relationship among Major Study Variables

Table 1

Correlations of the Continuous Demographic Variables with the Major Study Variables

Major Study Variable	Demographic Variable	
	Child Age	Parent Education
1. Parent Aggression	-0.102	-.233**
2. Parent Social Cognitions	-0.042	-0.061
3. Inter-parental Aggression	0.065	-.157**
4. Parental Punishment	.173**	-.122
5. Child Social Cognitions	0.09	-0.077
6. Child Aggression	-0.204**	-.016

* $p \leq .05$, ** $p \leq .01$

Table 2

Correlations Among Parent and Child Aggression Variables

Variable	1	2	3	4	5
1. Parent Aggression	–				
2. Parent Social Cognitions	.350**	–			
3. Inter-parental Aggression	.232**	0.008	–		
4. Parental Punishment	.148**	-0.023	.196**	–	
5. Child Social Cognitions	0.11	0.032	0.04	.235**	–
6. Child Aggression	.226*	0.107	.137*	.183*	.593**

* $p \leq .05$, ** $p \leq .01$

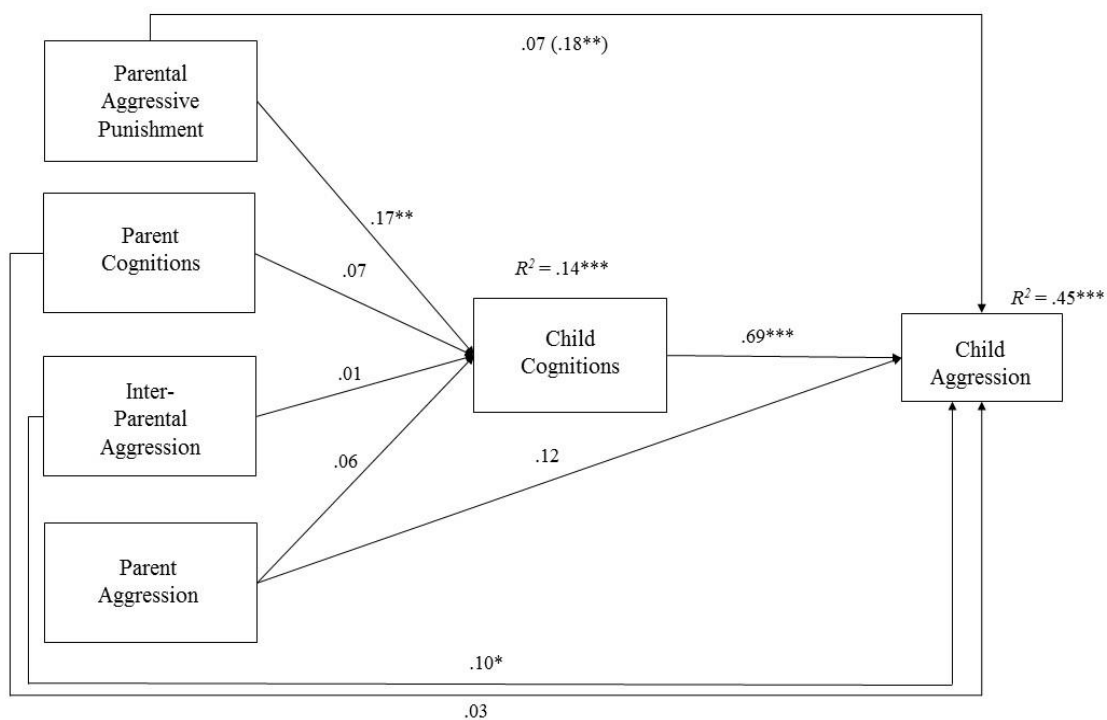


Fig 2. Structural Model of Relationship between Parental Predictors of Aggression and Children's Aggression, With Child Cognitions as a Mediator.

Note. Child age, parent education, and child and parent age were controlled for in all analyses.

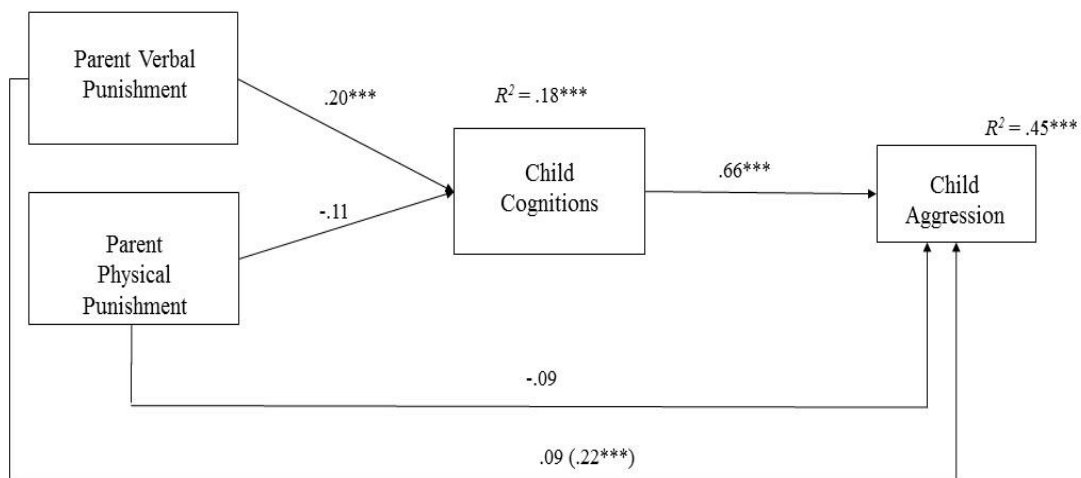
* $p < .05$, ** $p < .01$, *** $p < .001$

Table 3
Correlations among Decomposed Study Variables

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1. Child Aggression	—													
2. Parent Aggression	.226**	—												
3. Parent Hostile Attribution Bias	0.091	.143*	—											
4. Parent Normative Beliefs	0.073	.310**	.218**	—										
5. Parent Social Problem Solving	0.034	.124*	.235**	.322**	—									
6. Parent Aggressive Fantasy	.172**	.336*	.196**	.303**	.237**	—								
7. Parent Punishment: Hitting	0.07	0.092	0.074	-0.033	-0.001	0.023	—							
8. Parent Punishment: Verbal	.240**	.165**	-0.011	-0.055	0.002	-0.028	.420**	—						
9. Inter-parental Aggression: Parent toward other	.167**	.238**	0.101	0.072	-0.048	-0.007	0.057	.202**	—					
10. Inter-parental Aggression: Other Toward Parent	0.068	.157**	0.093	0.034	-0.04	-0.026	.141*	.175**	.465**	—				
11. Child Hostile Attribution Bias	.383**	0.092	0.013	0.025	-0.001	0.05	.128*	.183**	0.007	0.012	—			
12. Child Normative Beliefs	.506**	0.087	0.09	0.081	0.077	.148*	0.082	.197**	0.047	-0.017	.335**	—		
13. Child Social Problem Solving	.277**	0.106	0.016	0.021	0.007	0.029	0.036	.183**	0.04	0.021	0.016	.267**	—	
14. Child Aggressive Fantasy	.454**	0.027	-0.027	0.078	-0.019	0.066	0.015	.299**	-0.019	0.074	.241**	.357**	.269**	—

* $p \leq .05$, ** $p \leq .01$

Appendix A

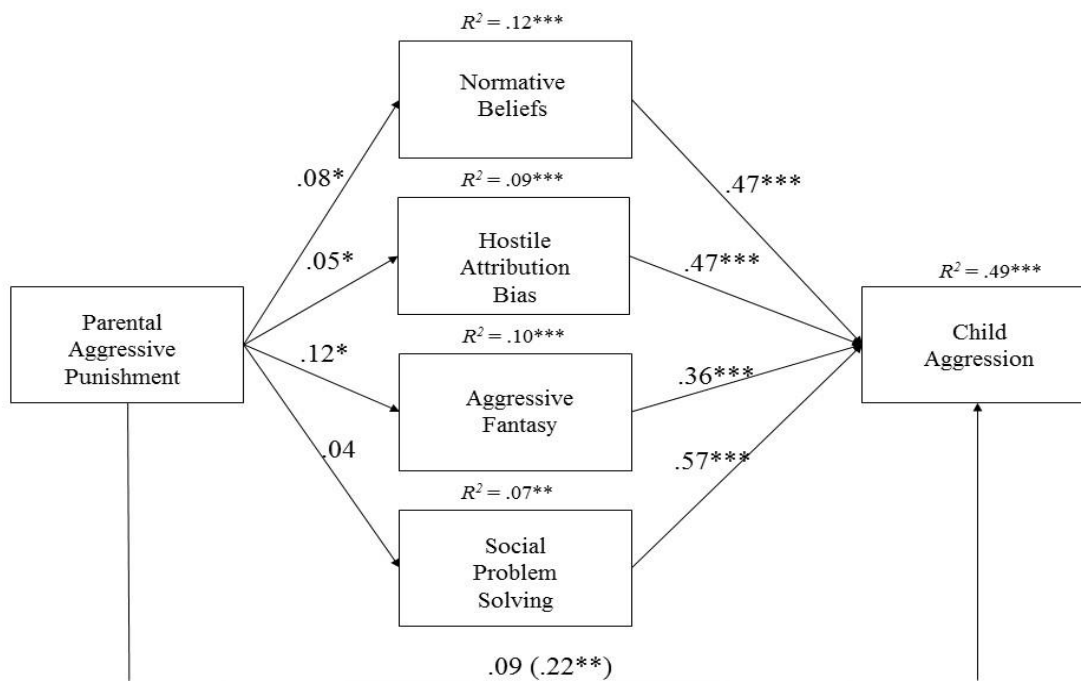


Structural model of relationship between decomposed parental punishment and children's aggression, with child cognitions as a mediator.

Note. Child age, parent education, and child and parent age were controlled for in all analyses.

$***p < .001$

Appendix B



Structural model of relationship between parental punishment and children's aggression, with child decomposed child cognitions as a mediator.

Note. Child age, parent education, and child and parent age were controlled for in all analyses.

* $p < .05$, ** $p < .01$, *** $p < .001$